ATTACHMENT H

Documentation for Compliance with 63.2485(n) for Wastewater for Soluble HAP

All wastewater streams that are Group 1 for PSHAP are treated in steam stripper 03C303 which reduces the concentration of PSHAP (methylene chloride and xylene) below 50 ppmw (or alternatively < 1,000 kg/yr). However, the concentration of SHAP (methanol) after treatment in 03C303 is greater than 50 ppmw. Because methanol is readily biodegradable and other non-HAP biodegradable constituents may be present in the treated Group 1 wastewater streams, the streams exiting the stripper are sent to the facility biological treatment plant. As a result a separate compliance option utilizing the biological treatment plant must be used for these streams.

Paragraph 63.2485(n) allows for streams that are group 1 for both SHAP and PSHAP or SHAP alone to meet a 90% destruction efficiency of the total HAP in the biological treatment plant using fraction biodegraded (f_{bio}). Paragraph 63.2485(n)(4) allows for a separate compliance options for PSHAP and SHAP streams. Although there are no Group 1 SHAP streams at the facility, it seems that this option should be available for separately managing the Group 2 methanol wastewater streams.

Air emissions are counted against the destruction efficiency. f_{bio} must be calculated according to the methods in 63.145(h).

Criteria to meet/consider:

- All transfers at the biological treatment plant are hard piped except an overflow between 99VA104 and 99R101 and the overflows from reactors to the clarifiers and from the clarifiers to the discharge.
- The biological reactors at the facility meet the definition of "enhanced biological treatment system".
- Less than 99% of the HAP entering the biological treatment system.

Methodology followed:

1. EPA model WATER9 was set up for two wastewater treatment lines which treat a different mix of wastewater entering the WWTP. The R101 system contains a mixing vessel, VA104, followed by three biological reactors in series R101, R102, and R202 and a clarifier SD201. The R301 system consists of mixing vessel, VA105, followed by one biological reactor (R301) and a degassing unit R201 and a clarifier SD301. Two separate models were developed and executed with loading data collected from 2009. Addendum 1 contains WATER9 output reports including process flow diagrams for both systems, summary report III showing total component HAP air emissions from the system tanks, mixing vessels, aeration units, clarifers, etc., and individual unit data for the simulations, and a page containing the inlet loading conditions for each line. The model was used to calculate HAP air emissions from the treatment plant and to obtain mass transfer coefficients used in f_{bio} calculations later described.

2. Form III of Appendix C of part 63 was used to calculate f_{bio}. In accordance with 63.145(h)(2)(i) Table 37 of Subpart G must be used to determine K1, since the facility does not meet the 99% list 1 of Table 36 of Subpart G compounds criteria of 63.145(1)(ii). Based upon 2009 data methanol accounts for 98% of the total HAP's entering the biological treatment plant. For methanol that value of K1 is 0.2. The

overall mass transfer coefficient, KL, was obtained from WATER 9. Form III's for both treatment lines are provided in Addendum 2.

3. Equation 1 of 63.2485 was used to calculate the destruction efficiency. The required efficiency is 90%. The results clearly demonstrate this has been attained. Addendum 3 contains the details of that calculation.